

502 > a plurality of second passageway plates each having a second passageway defined therein;

F4 a plurality of partition plates, said plurality of first passageway plates and said plurality of second passageway plates being stacked in an alternating manner with one of said plurality of partition plates interposed between each adjacent first passageway plate and second passageway plate, and said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates being aligned, whereby a first fluid flowing through said first passageway of each of said first passageway plates flows in a manner that is countercurrent to a flow of a second fluid flowing through said second passageway of each of said second passageway plates; and

a partition member arranged in at least one of said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates so as to divide said at least one of said first passageway and said second passageway into two sections with respect to a widthwise direction of said at least one of said first passageway and said second passageway.

22. The plate heat exchanger of claim 21, wherein said partition member is arranged in only said first passageway of each of said first passageway plates.

502 > 23. The plate heat exchanger of claim 21, wherein each of said partition plates has a thickness greater than a thickness of any one of said first passageway plates and said second passageway plates.

24. The plate heat exchanger of claim 23, wherein said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates have generally U-shaped turning portions.

Sub C 25. The plate heat exchanger of claim 21, wherein said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates have generally U-shaped turning portions.

26. The plate heat exchanger of claim 25, wherein each of said first passageway plates, said second passageway plates, and said partition plates has a plurality of header through-holes formed therein and arranged so as to form an inlet header and an outlet header in said plate heat exchanger.

27. A method of making a plate heat exchanger, comprising:

shaping a plurality of plates by pressing to form two fluid passageways in the plurality of plates, wherein the fluid passageways are not in fluid communication with each other, said pressing comprising pressing against a first surface of each of the plates toward a second surface of each of the plates;

coating solder paste on the first surface of each of the plates;

stacking the plates so that the second surface of each plate does not adjoin the second surface of an adjacent plate, whereby the plates are oriented in the same direction with respect to the first surface and the second surface of each of the plates; and

heating the plates while holding the plates in close contact with each other.

28. The method of claim 27, wherein said coating of the solder paste comprises coating the solder paste on only the first surface of each of the plates.

29. The method of claim 27, wherein said coating of the solder paste comprises printing the solder paste on the first surface of each of the plates using a coating mask.

30. A plate heat exchanger comprising:

a pair of end plates;

therein;

a plurality of first passageway plates each having a first passageway defined therein;

a plurality of second passageway plates each having a second passageway defined therein; and

a plurality of partition plates, said plurality of first passageway plates and said plurality of second passageway plates being stacked in an alternating manner with one of said plurality of partition plates interposed between each adjacent first passageway plate and second passageway plate, and said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates being aligned, whereby a first fluid flowing through said first passageway of each of said first passageway plates flows in a manner that is countercurrent to a flow of a second fluid flowing through said second passageway of each of said second passageway plates, said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates having generally U-shaped turning portions, at least one of said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates having a substantially uniform width along a lengthwise direction thereof.

31. The plate heat exchanger of claim 30, wherein each of said partition plates has a thickness greater than a thickness of any one of said first passageway plates and said second passageway plates.

32. The plate heat exchanger of claim 30, wherein each of said first passageway plates, said second passageway plates, and said partition plates has a plurality of header through-holes formed therein and arranged so as to form an inlet header and an outlet header in said plate heat exchanger.

33. A plate heat exchanger comprising:

a pair of end plates;

a plurality of first passageway plates each having a first passageway defined therein;

a plurality of second passageway plates each having a second passageway defined therein;

a plurality of partition plates, said plurality of first passageway plates and said plurality of second passageway plates being stacked in an alternating manner with one of said plurality of partition plates interposed between each adjacent first passageway plate and second passageway plate, and said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates being aligned, whereby a first fluid flowing through said first passageway of each of said first passageway plates flows in a manner that is countercurrent to a flow of a second fluid flowing through said second passageway of each of said second passageway plates, said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates having straight portions connected by generally U-shaped turning portions, each of said first passageway plates and each of said second passageway plates having a through-hole formed therein between adjoining straight portions of said first passageway of each of said first passageway plates and said second passageway of each of said second passageway plates, and each of said partition plates having a through-hole formed therein so that said through-hole of each of said first passageway plates communicates with said through-hole of each of said second passageway plates.

34. The plate heat exchanger of claim 33, wherein each of said partition plates has a thickness greater than a thickness of any one of said first passageway plates and said second passageway plates.

35. The plate heat exchanger of claim 33, wherein each of said first passageway plates, said second passageway plates, and said partition plates has a plurality of header through-holes formed therein and arranged so as to form an inlet header and an outlet header in said plate heat exchanger.

36. The plate heat exchanger of claim 33, wherein said through-hole in each of said first passageway plates, said second passageway plates, and said partition plates comprises an elongated slot.

37. The plate heat exchanger of claim 36, wherein said elongated slot in each of said first passageway plates, said second passageway plates, and said partition plates communicate with each other so as to form a thermally-insulating air-filled void.

38. The plate heat exchanger of claim 33, wherein said through-hole in each of said first passageway plates, said second passageway plates, and said partition plates communicate with each other so as to form a thermally-insulating air-filled void.

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